OCCUPATIONAL ANALYSES SERIES

Powerline Technician

2004

Human Resources and Skills Development Canada
Ressources humaines et Développement des compétences Canada

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Powerline Technician

2004

Trades and Apprenticeship Division

Human Resources
Partnerships Directorate

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Monteur/monteuse de lignes sous tension

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The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this occupational analysis as the national standard for the occupation of powerline technician.

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This analysis was prepared by the Human Resources Partnerships Directorate of HRSDC. The overall planning and coordination of the development of this analysis were undertaken by staff members of HRSDC's Trades and Apprenticeship Division.

OTHER RELATED OCCUPATIONAL TITLES

This analysis covers tasks performed by a powerline technician whose occupational title has been identified by some provinces and territories of Canada under the following names:

- Lineman
- Operating Lineman
- Power Line Electrician
- Power Lineman
- Power Lineperson
- Power Lineworker
- Powerline Technician (Lineman)

LIST OF PUBLISHED OCCUPATIONAL ANALYSES *

TITLE	NOC** Code
Appliance Service Technician (1997)	7332
Aquaculture Technician (1977)	2221
Arts Administrator (1989)	0114
Automotive Painter (1995)	7322
Automotive Service Technician (1998)	7321
Automotive Technician - Automatic Transmission (1990)	7321
Automotive Technician - Electrical/Electronics (1992)	7321
Automotive Technician - Engine Repair and Fuel Systems (1989)	7321
Automotive Technician - Front-End (1990)	7321
Automotive Technician - Manual Transmission, Driveline and Brakes (1990)	7321
Aviation Machinist (1994)	7231
Baker (1997)	6252
Blaster (Surface) (1987)	7372
Boilermaker (2003)	7262
Bricklayer (2000)	7281
Cabinetmaker (2000)	7272
Carpenter (1998)	7271
Cement Finisher (1995)	7282
Construction Electrician (2003)	7241
Cook (2003)	6242
Electrical Rewind Mechanic (1999)	7333
Electronics Technician - Consumer Products (1997)	2242
Electronics Technician Vol. I (1986) (Video Equipment)	2242
Electronics Technician Vol. II (1986) (Audio Equipment)	2242
Electronics Technician Vol. III (1986) (Computer Equipment)	2242

* **Red Seal analyses are indicated in bold**

** **National Occupational Classification**

Electronics Technician Vol. IV (1986) (Office Equipment)	2242
Electronics Technician Vol. VI (1986) (Communication Equipment)	2242
Electronics Technician Vol. VII (1986) (Signalling Equipment)	2242
Electronics Technician Vol. VIII (1986) (Navigation Equipment)	2242
Electronics Technician Vol. IX (1986) (Video Game Equipment)	2242
Electronics Technician Vol. X (1987) (CADD Equipment)	2242
Electronics Technician Vol. XI (1987) (CAM Equipment)	2242
Electronics Technician Vol. XII (1987) (Robotics Equipment)	2242
Electronics Technician Vol. XIII (1987) (Biomedical and Laboratory Equipment)	2242
Electronics Technician Vol. XIV (1987) (Industrial Process-Control Equipment)	2243
Farm Equipment Mechanic (2000)	7312
Floorcovering Installer (1997)	7295
Glazier (2004)	7292
Hairstylist (1997)	6271
Heating (Gas and Oil) Servicer - Commercial and Industrial (1978)	7331
Heavy Duty Equipment Mechanic (1998)	7312
Industrial Electrician (2003)	7242
Industrial Instrument Mechanic (2000)	2243
Industrial Mechanic (Millwright) (1999)	7311
Insulator (Heat and Frost) (2000)	7293
Ironworker (Generalist) (1993)	7264
Lather (Interior Systems Mechanic) (2002)	7284
Logistics (1992)	0713
Machinist (1998)	7231
Major Electrical Appliance Repairer (1984)	7332
Metal Fabricator (fitter) (2003)	7263

Mobile Crane Operator (1997)	7371
Motorcycle Mechanic (1995)	7334
Motor Vehicle Body Repairer (Metal and Paint) (1997)	7322
New Home Builder and Residential Renovation Contractor (1992)	0712
Oil Burner Mechanic (1997)	7331
Painter and Decorator (2000)	7294
Partsperson (1995)	1472
Plumber (2003)	7251
Power Engineer (1997)	7351
Powerline Technician (2004)	7244
Recreation Vehicle Mechanic (2000)	7383
Refrigeration and Air Conditioning Mechanic (1997)	7313
Roofer (1997)	7291
Sheet Metal Worker (1997)	7261
Sprinkler System Installer (2003)	7252
Steamfitter-Pipefitter (1996)	7252
Tilesetter (2004)	7283
Tool and Die Maker (1997)	7232
Truck-Trailer Repairer (2003)	7321
Truck and Transport Mechanic (2000)	7321
Welder (2004)	7265

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FOREWORD

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to co-operate with provincial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources and Skills Development Canada sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of occupational analyses.

The Occupational Analysis Program has the following objectives:

- to identify and group the tasks performed by skilled workers in particular occupations;

- to identify those tasks that are performed by skilled workers in every province and territory;

- to develop instruments for use in the preparation of interprovincial standards "Red Seal" examinations and curricula for training leading to the certification of skilled workers;

- to facilitate the mobility, in Canada, of trainees and skilled workers;

- to supply employers and employees, and their associations, industries, training institutions and governments with analyses of the tasks performed in particular occupations.

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GUIDE TO ANALYSIS

DEVELOPMENT OF ANALYSIS

A draft analysis is developed by a knowledgeable consultant who, with the assistance of a committee of industry experts in the field, identifies all the tasks performed in the occupation.

The draft is then assigned to occupational analysts at Human Resources and Skills Development Canada for translation and then returned to the consultant for review to ensure conformity with the nationally approved format.

The consultant will then forward a copy of this analysis to provincial/territorial authorities for validation by specialists in the field. Their recommendations are assessed and incorporated into the final draft which also includes the identification of the common core tasks performed in the occupation.

The occupational analysis is published in both official languages.

STRUCTURE OF ANALYSIS

To facilitate understanding of the nature of the occupation, the work performed is divided into the following divisions:

A. **BLOCK** – is the largest division within the analysis and reflects a distinct operation relevant to the occupation.

B. **TASK** – is the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "BLOCK".

C. **SUB-TASK** – is the smallest division into which it is practical to subdivide any work activity and, combined with others, fully describes all duties constituting a "TASK".

Supporting Knowledge & Abilities

The elements of skill and knowledge that an individual must acquire to adequately perform the task are identified under this heading.

Trends

Any shifts or changes in technology that affect the block are identified under this heading.

Related Components

All components of a specified task being undertaken by the powerline technician are identified under this heading.

Tools and Equipment

All tools and equipment necessary for the powerline technician to complete a task are identified under this heading.

VALIDATION METHOD

At the request of the Canadian Council of Directors of Apprenticeship (CCDA), the Standardization Sub-committee developed a method for validating the Red Seal national occupational analyses.

A draft of the analysis is sent to all provinces/territories for validation. Each jurisdiction rates the sub-tasks and applies percentage ratings to blocks and tasks. This method for the validation of the national occupational analysis identifies common core tasks across Canada for a specific occupation. This feature facilitates the weighting of the Interprovincial Red Seal examinations.

DEFINITIONS

YES: the sub-task is performed by workers in the occupation in a specific jurisdiction.

NO: the sub-task is not performed by workers in the occupation in a specific jurisdiction.

BLOCK %: the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, that will be placed on an interprovincial examination to assess each block of the analysis.

TASK %: the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, that will be placed on an interprovincial examination to assess each task of the analysis.

NV: Not Validated by a province/territory.

ND: Not Designated in a province/territory.

PROVINCIAL/TERRITORIAL ABBREVIATIONS

NL:	Newfoundland and Labrador
NS:	Nova Scotia
PE:	Prince Edward Island
NB:	New Brunswick
QC:	Quebec
ON:	Ontario
MB:	Manitoba
SK:	Saskatchewan
AB:	Alberta
BC:	British Columbia
NT:	Northwest Territories
YK:	Yukon
NU:	Nunavut

COMMON CORE

The criteria for determining common core depend on the performance of sub-tasks. If 70% of the responding jurisdictions (excluding NVs and NDs) perform a sub-task, it shall be considered common core.

Interprovincial Red Seal examinations are based on the common core identified through this validation process. This process identifies what will be assessed through the interprovincial examination.

BLOCKS AND TASKS WEIGHTING (APPENDIX "C")

This appendix represents the block and task percentages as submitted by each jurisdiction.

Each jurisdiction, with the use of a provincial/territorial occupational advisory committee, validates the content, places percentages on blocks and tasks, and indicates whether or not the sub-tasks are performed by the skilled workers within the occupation. The results of this exercise are submitted to the consultant who then analyzes the data and develops this appendix which provides the individual jurisdictional validation results as well as the national averages of all responses.

PIE CHART (APPENDIX "D")

The graph depicts the national percentages assigned to blocks in the analysis.

SCOPE OF THE POWERLINE TECHNICIAN OCCUPATION

Powerline technicians construct, maintain and repair overhead and underground electrical power transmission and distribution systems. In some jurisdictions, powerline technicians also construct, maintain and repair communication networks. In larger utilities, powerline technicians may also specialize in one of the following areas: transmission lines, overhead and underground distribution, communication networks, and electrical power stations.

Powerline technicians erect and maintain steel, wood or concrete poles, towers and guy wires. They install, maintain and repair overhead and underground power lines and cables, and other associated equipment such as insulators, conductors, lightning arrestors, switches, transformers and lighting systems. They splice, solder and terminate conductors and related wiring to connect power distribution and transmission networks. Powerline technicians may also be called upon to perform stringing operations encompassing electrical/data and telephone systems incorporated into an outdoor transmission distribution system.

Powerline technicians work outside in all weathers. The work always involves travel to and from the work site, which is often in remote areas necessitating the use of a variety of access equipment such as all-terrain vehicles, helicopters, aircraft, and watercraft. They climb and maintain their balance while working overhead on poles and towers. They also work in confined spaces such as trenches and tunnels. The work often requires considerable standing, bending, crawling, lifting, climbing, pulling, and reaching and may be conducted in cramped, confined spaces or on poles and towers at great heights. Hazards include electric shocks, burns, and falls. Powerline technicians may work a 40-hour week; however, emergencies may require long hours in inclement weather.

Powerline technicians are required to have good mechanical aptitude, the ability to lift heavy objects, the ability to work at heights in varying extreme climates, a thorough knowledge of the principles of electricity, power transmission and distribution systems, and communication systems, and familiarity with the materials and techniques of construction. All powerline technicians are required to be competent in the use and care of a variety of vehicles and equipment such as articulated bucket trucks, digger derricks, mobile cranes, and trenchers as well as a variety of hand, power, electrical testing, and "hot line" tools and equipment.

All electrical wiring and installations must conform to the Canadian Standard Association (CSA) standards and codes or to the provincial or territorial power supply utility standards. Therefore, powerline technicians must be thoroughly familiar with the applicable sections of those documents. For safety, permits and other regulations they follow local electrical, building and safety codes.

Powerline technicians may work alone with minimal supervision, and they may supervise others.

OCCUPATIONAL OBSERVATIONS

The power generating and distribution industry appears to be in a state of flux. In many areas, there is a trend towards privatization and deregulation of the industry. This has resulted in greater competition among suppliers of power and the contracting-out of some of the traditional powerline technician work. There is a greater expectation among consumers to maintain uninterrupted power, which places a greater emphasis on live-line work.

There is a greater respect for the environment within the industry that includes the protection of waterways, streams and trees, and a move away from hazardous material such as PCB-filled transformers.

In some jurisdictions, the powerline technician occupation is suffering from an aging workforce, with many practitioners approaching retirement age, and is attracting fewer new entrants to replace them.

SAFETY

Safe working procedures and conditions, accident prevention, and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers, and employees. It is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to accidents or injury.

It is generally recognized that safety-conscious attitudes and work practices contribute to a healthy, safe, and accident-free working environment.

It is imperative to apply and be familiar with the *Occupational Health and Safety Act* and Workplace Hazardous Material Information System (WHMIS) Regulations. As well, it's essential to determine workplace hazards and take measures to protect oneself, co-workers, the public, and the environment.

As safety education is an integral part of training in all jurisdictions, personal safety practices are not recorded in this document. However, the technical safety aspects relating to each task and sub-task are included throughout this analysis.

ANALYSIS

BLOCK A

OCCUPATIONAL SKILLS

Trends: *The occupation has always placed a premium upon safety standards and practices. To continue to improve safety, the occupation is experiencing a move toward the increased use of fire-retardant clothing, ergonomically designed tools, equi-potential grounding and bonding, documented tailboard meetings, and an increase in the use of in-truck computer systems for location and reporting of outages, work orders, etc. Job planning techniques are becoming more widely used encompassing risk assessment, risk management and multiple-barrier principles.*

Task 1 Interprets occupational documentation.

Related Components: Structural and mechanical drawings, one-line diagrams, wiring diagrams, electrical and electronic schematics, layout drawings, service manuals, operating manuals, safety manuals, technical bulletins, standard operating procedures, cost regulations, provincial electrical codes, Electrical and Communication Utility Code (ECUC), Canadian Standards Association (CSA) codes, Underwriters Laboratory of Canada (ULC) codes, Instrument Society of America (ISA) codes, Institute of Electrical and Electronics Engineers (IEEE) standards, Workplace Hazardous Material Information System (WHMIS) manual, Occupational Health and Safety Acts (OHSA), and related construction regulations.

Tools and Equipment: Computer, printer, camera.

Sub-task

1.01 Interprets drawings, specifications and standards.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

1.01.01 knowledge of drawing standards such as architectural, mechanical and electrical

1.01.02 knowledge of symbols and legends in the various types of drawings and specifications

1.01.03 knowledge of specifications, appendices and/or revisions

Supporting Knowledge & Abilities

1.01.04 ability to analyze drawings, specifications and standards

1.01.05 ability to find related information in specifications, amendments and/or revisions

Sub-task

1.02 Interprets policies, regulations and procedures.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

1.02.01 knowledge of government standards and regulations such as the OHSA, and the WHMIS and confined space regulations

1.02.02 knowledge of provincial traffic control regulations

1.02.03 knowledge of the availability of quality assurance standards such as ULC handbook, IEEE and CSA codes

1.02.04 knowledge of company policies and procedures

1.02.05 knowledge of safe handling, storage and transportation of hazardous material regulations

1.02.06 knowledge of regulations and procedures for disposing of hazardous material such as PCBs, mercury and hydrogen sulphide lamps

1.02.07 ability to apply policies, regulations and procedures

Sub-task

1.03 Interprets material and equipment documentation.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

1.03.01 knowledge of WHMIS

1.03.02 knowledge of manufacturers' documents and specifications

1.03.03 knowledge of record keeping, filing and retrieval methods

1.03.04 ability to file and retrieve information

1.03.05 ability to follow manufacturers' instructions

1.03.06 ability to interpret Material Safety Data Sheets (MSDS)

Sub-task

1.04 Maintains work-related records.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

1.04.01 knowledge of company and government hazard and injury reporting procedures

1.04.02 knowledge of requirements of the National Safety Code for Vehicles

1.04.03 knowledge of record-keeping requirements

1.04.04 ability to maintain work logs

1.04.05 ability to keep time and material records

1.04.06 ability to interpret Material Safety Data Sheets (MSDS)

Supporting Knowledge & Abilities

1.04.07 ability to report hazard and injury information

1.04.08 ability to keep material and service documentation updated

Task 2 Organizes work.

Related Components: Company standards, safety manual, company policies, procedures, and regulations.

Tools and Equipment: See Appendix "A".

Sub-task

2.01 Assesses and prepares work site.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.01.01 knowledge of overhead and underground work hazards

2.01.02 knowledge of secondary and primary clearances

2.01.03 knowledge of easements and boundary lines

2.01.04 knowledge of standards and procedures as per work order

2.01.05 knowledge of safety regulations applicable to work site

2.01.06 knowledge of impact of climate conditions on personnel and equipment

2.01.07 knowledge of alternative methods for performing work in wet, cold and icy conditions

Supporting Knowledge & Abilities

2.01.08 ability to assess site conditions

2.01.09 ability to locate underground services such as gas, water and electricity

2.01.10 ability to identify and remove or mitigate obstacles, hazards and barriers such as snow, trees and boulders

2.01.11 ability to interpret land use permits and environmental specifications

Sub-task

2.02 Controls vehicle and pedestrian traffic.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.02.01 knowledge of provincial/territorial traffic control regulations

2.02.02 knowledge of hazards pertaining to vehicle and pedestrian traffic

2.02.03 ability to direct traffic or coordinate traffic control

2.02.04 ability to alter the flow of vehicular and pedestrian traffic by means of cones, signs and caution tape

2.02.05 ability to guard-off and ribbon-off vehicles and equipment

2.02.06 ability to cordon off work area

Sub-task

2.03 Identifies powerline hazards.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.03.01 knowledge of overhead work hazards such as foreign debris, broken poles, insulators, tie wires and crossarms

Supporting Knowledge & Abilities

2.03.02 knowledge of underground work hazards such as gas, fumes, flooding and cave-ins

2.03.03 knowledge of confined space regulations

2.03.04 knowledge of grounding and bonding requirements

2.03.05 knowledge of surrounding hazards and safety risks

2.03.06 ability to identify sub-standard construction

2.03.07 ability to identify lines status

2.03.08 ability to operate and read a hazardous gas monitor

Sub-task

2.04 Controls powerline hazards. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.04 01 knowledge of protective equipment

2.04.02 knowledge of procedures to obtain tagging and locking clearances

2.04.03 ability to determine lines status

2.04.04 ability to install temporary grounding and bonding

2.04.05 ability to place live-line protection such as by-pass jumpers, protective cover-up and plastic line guards

2.04.06 ability to place lock-outs and tags

2.04.07 ability to ventilate tunnels and trenches

2.04.08 ability to secure trenches and tunnels

2.04.09 ability to erect barriers to eliminate or mitigate hazards

Sub-task

2.05 Controls environmental hazards.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.05.01 knowledge of potential environmental hazards such as oil spills, damage to streams and wetlands

2.05.02 knowledge of company policies and procedures pertinent to environmental protection

2.05.03 ability to identify and react to environmental hazards

2.05.04 ability to select and install spill kit components

2.05.05 ability to repair damage to streams

Sub-task

2.06 Organizes equipment, tools and personnel.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.06.01 knowledge of tools and equipment required for the job

2.06.02 knowledge of manufacturers' specifications on the use and care of tools and equipment

2.06.03 knowledge of qualifications of personnel required to complete job

2.06.04 knowledge of company policies, procedures and regulations relating to crew complement for each job

2.06.05 knowledge of company policy, procedures and regulations for equipment required for each job

2.06.06 ability to select and use tools and equipment required for the job

2.06.07 ability to interpret manufacturers' specifications on the use and care of tools and equipment

Supporting Knowledge & Abilities

2.06.08 ability to assess the competency of personnel to complete the job

2.06.09 ability to give direction

2.06.10 ability to interpret company policy, procedures and regulations

2.06.11 ability to place, level and set up equipment

Sub-task

2.07 Organizes materials and supplies.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.07.01 knowledge of required materials and supplies

2.07.02 knowledge of inventory control

2.07.03 knowledge of proper storage of materials and supplies on site to ensure security and ease of use

2.07.04 knowledge of the sequence in which materials and supplies are to be used

2.07.05 knowledge of methods for securing and protecting materials and supplies

2.07.06 ability to source material and supplies

2.07.07 ability to estimate materials and supplies required as job progresses

2.07.08 ability to transport materials and supplies safely to site

2.07.09 ability to place materials and supplies on site

2.07.10 ability to protect and secure materials

Sub-task

2.08 Develops and maintains schedule.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

2.08.01 knowledge of sequence of work

2.08.02 knowledge of the need for other trades on site

2.08.03 knowledge of communication techniques

2.08.04 ability to estimate time to complete specific tasks

2.08.05 ability to co-ordinate work with others

2.08.06 ability to communicate and cooperate with others

Task 3 Communicates in the workplace.

Related Components: Company policy, procedures and regulations.

Tools and Equipment: Communication devices (fax, cellular phone, telephone, photocopier, computer, radio, pager).

Sub-task

3.01 Communicates with other disciplines and co-workers.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

3.01.01 knowledge of job-related terminology

3.01.02 knowledge of company reporting procedures

3.01.03 knowledge of reporting formats such as government and company forms

3.01.04 ability to actively listen

3.01.05 ability to translate technical terms into layperson language

Supporting Knowledge & Abilities

3.01.06 ability to report information to supervisor/dispatcher such as hazards, accidents and line and climatic conditions

3.01.07 ability to address others' concerns

3.01.08 ability to direct others

3.01.09 ability to write reports in the prescribed format

Sub-task

3.02 Communicates with customers.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

3.02.01 knowledge of company policies, procedures and regulations

3.02.02 ability to identify customers' problems

3.02.03 ability to explain problem to customer

3.02.04 ability to translate technical terms into layperson language

3.02.05 ability to address customer's concerns

3.02.06 ability to explain scope of work to customer

3.02.07 ability to inform customers of time and duration of disruptions

Sub-task

3.03 Communicates with apprentices.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

3.03.01 knowledge of capability of apprentice

3.03.02 ability to teach, coach and mentor apprentices

Supporting Knowledge & Abilities

3.03.03 ability to listen to and assist with problems

3.03.04 ability to supervise

3.03.05 ability to demonstrate on-the-job tasks

3.03.06 ability to assess and record ongoing progress of apprentice's performance

Sub-task

3.04 Participates in tailboard meetings.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

3.04.01 knowledge of duties of crew

3.04.02 knowledge of crew qualifications and competencies

3.04.03 knowledge of sequence and schedule of work

3.04.04 knowledge of potential hazards

3.04.05 knowledge of other trade persons required at job site

3.04.06 ability to assess and communicate potential hazards

3.04.07 ability to assign tasks

3.04.08 ability to monitor progress of job

Sub-task

3.05 Communicates using hand signals.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

3.05.01 knowledge of types of hand signals

3.05.02 ability to demonstrate and interpret hand signals

Sub-task

3.06 Communicates electronically. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

3.06.01 knowledge of types of electronic communication devices such as cellular telephones, two-way radios and laptop computer

3.06.02 knowledge of communications protocols and company reporting policies

3.06.03 ability to operate electronics communications devices

3.06.04 ability to send, receive and retrieve information from computers

Task 4 Uses and maintains tools and equipment.

Related Components: Lubricants, operator's manuals.

Tools and Equipment: See Appendix "A".

Sub-task

4.01 Uses personal protective equipment (PPE). **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.01.01 knowledge of types and uses of personal protective equipment such as hard hats, safety glasses, hearing protection, rubber gloves, climbing gear, pole belts and fall arrest equipment

4.01.02 knowledge of components of personal protective equipment

4.01.03 knowledge of manufacturers' specifications on the use and care of personal protection equipment

4.01.04 ability to select and use personal protective equipment for conditions encountered

Supporting Knowledge & Abilities

4.01.05 ability to use fall arrest equipment when working aloft

4.01.06 ability to identify and replace damaged, worn, or otherwise unsafe personal protective equipment

4.01.07 ability to store personal protective equipment

Sub-task

4.02 Uses hand tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.02.01 knowledge of types and uses of hand tools

4.02.02 knowledge of hand tool safety

4.02.03 knowledge of manufacturers' specifications on the use and care of hand tools

4.02.04 ability to select and use hand tools required for task

4.02.05 ability to identify and replace damaged, worn or otherwise unsafe hand tools

4.02.06 ability to store hand tools

Sub-task

4.03 Uses power tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.03.01 knowledge of types and uses of air, electric, hydraulic and gas-powered tools

4.03.02 knowledge of power tool safety

4.03.03 knowledge of power tool components and accessories

4.03.04 knowledge of operating procedures for power tools

4.03.05 knowledge of manufacturers' specifications of use and care of power tools

Supporting Knowledge & Abilities

4.03.06 ability to select power tools required for task

4.03.07 ability to identify and replace damaged, worn or otherwise unsafe power tools

4.03.08 ability to store power tools

Sub-task

4.04 Uses powder-actuated tools. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.04.01 knowledge of types and uses of powder-actuated tools

4.04.02 knowledge of powder-actuated tool safety

4.04.03 knowledge of powder-actuated tool components and accessories

4.04.04 knowledge of operating procedures for powder-actuated tools

4.04.05 knowledge of manufacturers' specifications on use and care of powder-actuated tools

4.04.06 knowledge of licensing or training requirements prior to use of powder-actuated tools

4.04.07 ability to select powder-actuated tools required for task

4.04.08 ability to identify and replace damaged, worn or otherwise unsafe powder-actuated tools

4.04.09 ability to charge powder-actuated tools

4.04.10 ability to store powder-actuated tools

Sub-task

4.05 Uses electrical measuring and testing equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.05.01 knowledge of types and uses of electrical measuring and testing equipment

4.05.02 knowledge of electrical measuring and testing equipment safety

4.05.03 knowledge of electrical measuring and testing equipment components and accessories

4.05.04 knowledge of operating procedures for electrical measuring and testing equipment

4.05.05 knowledge of manufacturers' specifications of use and care of electrical measuring and testing equipment

4.05.06 ability to select electrical measuring and testing equipment required for task

4.05.07 ability to identify and replace damaged, worn or otherwise unsafe electrical measuring and testing equipment

4.05.08 ability to connect electrical measuring and testing equipment

4.05.09 ability to interpret equipment readings

4.05.10 ability to store electrical measuring and testing equipment

Sub-task

4.06 Uses ladders.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.06.01 knowledge of types and uses of ladders

4.06.02 knowledge of safe operating procedures for ladders

Supporting Knowledge & Abilities

4.06.03 knowledge of manufacturers' specifications for use and care of ladders

4.06.04 ability to select ladders for task

4.06.05 ability to identify and replace damaged, worn or otherwise unsafe ladders

4.06.06 ability to position ladders

4.06.07 ability to secure ladders

4.06.08 ability to dismantle and store ladders

Sub-task

4.07 Uses climbing gear.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.07.01 knowledge of types and uses of climbing gear

4.07.02 knowledge of safe climbing procedures such as fall arrest

4.07.03 knowledge of climbing gear components and accessories

4.07.04 knowledge of manufacturers' specifications on care and use of climbing gear

4.07.05 ability to select climbing gear required for task

4.07.06 ability to identify and replace damaged, worn or otherwise unsafe climbing gear

4.07.07 ability to inspect poles for defects and hazards such as knots, cracks and attachments

4.07.08 ability to adjust climbing gear to individual fit

4.07.09 ability to use safe climbing techniques according to job and weather

4.07.10 ability to store climbing gear

Sub-task

4.08 Uses aerial work platforms. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.08.01 knowledge of types and uses of aerial work platforms such as bucket trucks and insulated pole platforms

4.08.02 knowledge of aerial work platform safety

4.08.03 knowledge of aerial work platforms components and accessories

4.08.04 knowledge of operating procedures of aerial work platforms

4.08.05 knowledge of manufacturers' specifications for use and care of aerial work platforms

4.08.06 ability to select aerial work platforms required for task

4.08.07 ability to identify and replace damaged, worn or otherwise unsafe aerial work platforms and equipment

4.08.08 ability to position aerial work platforms

4.08.09 ability to perform current leakage tests on insulated bucket trucks

4.08.10 ability to store work platforms

Sub-task

4.09 Uses rigging, hoisting and lifting equipment. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.09.01 knowledge of types and uses of hoisting and lifting equipment such as jacks, hoists and come-alongs and radial boom derricks (RBD's)

Supporting Knowledge & Abilities

4.09.02 knowledge of rigging, hoisting and lifting equipment safety

4.09.03 knowledge of types and uses of rigging equipment such as belts, ropes, cables and slings

4.09.04 knowledge of rigging, hoisting and lifting equipment components

4.09.05 knowledge of operating procedures and hand signals for hoisting and lifting equipment

4.09.06 knowledge of rigging procedures

4.09.07 knowledge of manufacturers' specifications for use and care of rigging equipment

4.09.08 ability to estimate weight of load to be lifted

4.09.09 ability to select and operate hoisting and lifting equipment required for task

4.09.10 ability to select rigging equipment required for task

4.09.11 ability to identify and replace damaged, worn or otherwise unsafe rigging, hoisting and lifting equipment

4.09.12 ability to place hoisting and lifting equipment

4.09.13 ability to store rigging, hoisting, and lifting equipment

Sub-task

4.10 Uses live-line tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	no	yes	yes	yes	yes	yes	ND

4.10.01 knowledge of types and use of live-line tools such as wire tongs, tie sticks and switch stick

4.10.02 knowledge of live-line tool safety

Supporting Knowledge & Abilities

4.10.03 knowledge of manufacturers' specifications for care and use of live-line tools

4.10.04 knowledge of live-line tool attachments

4.10.05 ability to select live-line tool required for task

4.10.06 ability to identify and replace damaged, worn or otherwise unsafe live-line tools

4.10.07 ability to store live-line tools

Sub-task

4.11 Maintains tools and equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

4.11.01 knowledge of types of tools

4.11.02 knowledge of manufacturers' recommended maintenance procedures

4.11.03 ability to interpret manufacturers' manuals

4.11.04 ability to maintain personal protective equipment

4.11.05 ability to clean, lubricate and sharpen hand tools and equipment

4.11.06 ability to clean and lubricate power tools

4.11.07 ability to perform minor repairs to power tools

4.11.08 ability to clean and lubricate powder-actuated tools

4.11.09 ability to maintain access equipment such as scaffolds, ladders and lifts

4.11.10 ability to maintain electrical measuring and testing equipment

4.11.11 ability to maintain climbing gear

Supporting Knowledge & Abilities

4.11.12 ability to maintain aerial work platforms, such as boom cleaning and waxing

4.11.13 ability to maintain rigging, hoisting, and lifting equipment

4.11.14 ability to maintain live-line tools

BLOCK B

STRUCTURES

Trends: *The occupation is experiencing a move towards a greater sensitivity to environmental protection such as ensuring the protection of streams and trees.*

Task 5 **Installs poles.**

Related Components: Poles, (wood, steel, aluminium, fibreglass, concrete), prefabricated bases, cross-arms, insulators, guy wires, anchors, hardware.

Tools and Equipment: Personal protection equipment (PPE), power tools, hand tools, rigging and hoisting equipment, off-road equipment, live-line tools, safety equipment, back hoe, boom truck, radial boom derrick (RBD), jack hammer, air compressor, specialty tools, powder actuated tools.

Sub-task

5.01 **Selects poles.**

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	no	yes	yes	yes	yes	yes	ND

5.01.01 knowledge of types of poles such as wood, concrete and steel

5.01.02 knowledge of classes, heights and treatment of poles

5.01.03 knowledge of pole standards

5.01.04 knowledge of pole properties

5.01.05 ability to identify type, class and height of poles

5.01.06 ability to match pole to work order

Sub-task

5.02 Frames poles. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

5.02.01 knowledge of framing standards

5.02.02 knowledge of guy wire requirements

5.02.03 knowledge of insulator requirements

5.02.04 knowledge of types and sizes of hardware such as machine bolts, crossarms and crossarm pins

5.02.05 knowledge of pole configurations

5.02.06 ability to interpret blueprints and utility standards book

5.02.07 ability to install attachments such as cross-arms and bracing

5.02.08 ability to install guying and rigging

5.02.09 ability to install insulators

Sub-task

5.03 Sets poles. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	no	yes	yes	yes	yes	yes	ND

5.03.01 knowledge of setting requirements such as depth and diameter of hole and soil conditions

5.03.02 knowledge of hole standards

5.03.03 knowledge of pole installation techniques and procedures such as pole cribs and pole rock mount

5.03.04 knowledge of temporary rope guying techniques and procedures

5.03.05 knowledge of temporary conductor relocation and cover up techniques

Supporting Knowledge & Abilities

5.03.06 knowledge of techniques and procedures to set poles within energized lines

5.03.07 knowledge of mobile hydraulic equipment

5.03.08 ability to drill hole

5.03.09 ability to operate pole setting equipment such as digger, derrick, boom, and tamping bar

5.03.10 ability to plumb pole

5.03.11 ability to backfill and tamp

5.03.12 ability to assess live-line situation and determine live-line set-up procedures

5.03.13 ability to identify balance points

5.03.14 ability to install and remove pole guards

Sub-task

5.04 Installs pole guys and anchors.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

5.04.01 knowledge of types of anchors, such as anchor plates, anchor logs, rock anchors, expansion rock anchors and power/hand installed screw anchors

5.04.02 knowledge of size and load rating of guy wires

5.04.03 ability to select anchors and guy wires

5.04.04 ability to place anchors

5.04.05 ability to secure and tension guy wires

Task 6 Installs transmission towers.

Related Components: Prefabricated footings, steel structure components, associated hardware, insulators.

Tools and Equipment: Hand tools, power tools, rigging, hoisting and lifting equipment, personal protection equipment, off-road equipment, live-line tools, safety equipment.

Sub-task

6.01 Installs footings.

Supporting Knowledge & Abilities

(NOT COMMON CORE)

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	no	ND	no	no	yes	no	yes	no	yes	ND

6.01.01 knowledge of engineering specifications

6.01.02 knowledge of material characteristics such as concrete and steel

6.01.03 knowledge of template set-up procedures

6.01.04 ability to interpret blueprints/work orders

6.01.05 ability to match supply with blueprint and/or work order

6.01.06 ability to follow positioning instructions

Sub-task

6.02 Assembles transmission towers.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	no	ND	yes	yes	yes	yes	yes	no	yes	ND

6.02.01 knowledge of transmission tower configurations

6.02.02 knowledge of types of hardware such as bolts, plates and washers

6.02.03 knowledge of rigging techniques and procedures

6.02.04 ability to interpret blueprints and utility standards book

Supporting Knowledge & Abilities

6.02.05 ability to identify and sort components

6.02.06 ability to operate rigging equipment such as cranes, slings, cables and gin poles

6.02.07 ability to install attachments such as cross arms, insulators and bracing

Sub-task

6.03 Erects transmission towers.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	no	ND	yes	yes	yes	yes	yes	no	yes	ND

6.03.01 knowledge of transmission tower configurations

6.03.02 knowledge of types of materials such as wires, steel bolts and insulators

6.03.03 knowledge of how to match supplies against work orders and blueprints

6.03.04 knowledge of rigging techniques and procedures

6.03.05 ability to match materials such as wires, steel bolts and insulating

6.03.06 ability to interpret work orders and blueprints

6.03.07 ability to match supplies against work order and blueprints

6.03.08 ability to apply rigging techniques and procedures

6.03.09 ability to secure transmission tower to base

Sub-task

6.04 Installs transmission tower guy wires and anchors.

Supporting Knowledge & Abilities

(NOT COMMON CORE)

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	no	ND	yes	no	yes	yes	yes	no	yes	ND

6.04.01 knowledge of types of anchors such as anchor plates, log anchors and rock anchors

6.04.02 knowledge of size and load rating of guy wire

6.04.03 knowledge of guying applications

6.04.04 ability to interpret standards

6.04.05 ability to position anchors

6.04.06 ability to assemble and secure guy wires

6.04.07 ability to interpret dynamometer readings

6.04.08 ability to install strain insulators

BLOCK C

CONDUCTOR SYSTEMS

Trends: *The occupation is experiencing a move toward the installation of data and telephone cable as well as installation of overhead insulated cables.*

Task 7 **Installs overhead conductors.**

Related Components: Secondary conductors (quadraplex, triplex, duplex, or open wire), insulators, bells, epoxilators, tying-in materials (preformed, tie wire), armour rod, aircraft markers, spacers, dampers, secondary suspension materials (preforms, wedge grips).

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, live-line tools, power tools, sag boards, running grounds, aerial work platforms, rigging and hoisting equipment.

Sub-task

7.01 **Strings overhead conductors.** **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

7.01.01 knowledge of properties of conductors such as current rating, voltage rating and insulating values

7.01.02 knowledge of safe working methods and procedures

7.01.03 ability to obtain system protection to string conductors

7.01.04 ability to interpret work orders and job sheets

7.01.05 ability to employ live-line techniques

7.01.06 ability to operate stringing equipment

7.01.07 ability to identify and select conductor types and sizes

Sub-task

7.02 Sags overhead conductors. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

7.02.01 knowledge of sagging techniques and procedures

7.02.02 knowledge of safe working methods and procedures

7.02.03 knowledge of rigging techniques and procedures

7.02.04 knowledge of equipment required to sag conductors such as chain, cable jacks, web hoist and tensioning trailer

7.02.05 ability to interpret sag charts and related information

7.02.06 ability to select material required for dead-ending

7.02.07 ability to identify the conductor types and sizes

7.02.08 ability to install sag boards, tension dynamometer and transits

7.02.09 ability to select the proper sagging methods

Sub-task

7.03 Ties-in overhead conductors. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

7.03.01 knowledge of tying-in or clamping-in conductor such as tie-top and clamp-top

7.03.02 knowledge of methods of live-line procedures

7.03.03 knowledge of types of ties such as tie wire and preformed ties

7.03.04 ability to select type of tie or clamp

7.03.05 ability to install armour rods

Supporting Knowledge & Abilities

7.03.06 ability to install dampers, spacers and aircraft markers

Sub-task

7.04 Splices overhead conductors. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

7.04.01 knowledge of splicing techniques and procedures

7.04.02 knowledge of types of sleeves such as compression and auto sleeves

7.04.03 knowledge of splicing tools

7.04.04 ability to select and use splicing tools

7.04.05 ability to identify and select sleeves and dies

Task 8 Installs underground cable.

Related Components: Primary cable (copper or aluminium, concentric neutral, shielded), secondary cable (copper or aluminium, concentric neutral, single conductor), pulling compound, ducting material (PVC or FRE), vaults, terminating material (primary elbows, lugs, stress cones and secondary lugs, pins and spades), marking tape and tags, racking material.

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, power tools, aerial work platforms, cable stripper, rigging, hoisting and lifting equipment, backhoe, trencher, hydro vacuum excavator.

Sub-task

8.01 Places underground cable. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	no	yes	yes	yes	yes	yes	ND

8.01.01 knowledge of properties of conductors such as current rating, voltage rating and insulating values

Supporting Knowledge & Abilities

8.01.02 knowledge of methods to place cable such as in duct or direct buried

8.01.03 knowledge of underground cable installation procedures

8.01.04 ability to identify and select cable

8.01.05 ability to install direct buried cable

8.01.06 ability to pull cable through duct system

8.01.07 ability to select pulling equipment

8.01.08 ability to coordinate the activity of trench digging activities

8.01.09 ability to identify cables such as meggering, tagging and taping

Sub-task

8.02 Splices underground cable. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

8.02.01 knowledge of splicing techniques and procedures

8.02.02 knowledge of types and size of cables such as primary and secondary

8.02.03 knowledge of insulation requirements such as heat and cold shrink

8.02.04 ability to select and use splicing tools

8.02.05 ability to identify and select dies and presses

Sub-task

8.03 Terminates underground cable.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

8.03.01 knowledge of types of terminations such as elbows, stress cones and inserts

8.03.02 knowledge of types of connections for secondary underground conductors

8.03.03 knowledge of manufacturer's instructions

8.03.04 ability to install terminations such as elbows, stress cones and inserts

8.03.05 ability to identify high and low potential

8.03.06 ability to select termination tools

8.03.07 ability to operate insulation and semi-conductor removal tools

8.03.08 ability to tag or mark underground cables

BLOCK D

AUXILIARY EQUIPMENT

Trends: *The occupation is experiencing the increased use of environmentally friendly products such as non-PCB transformer fills, stainless steel transformers and groundings.*

Task 9 Installs lighting systems.

Related Components: Poles (wood concrete, aluminium, steel), fixtures and lamps, bases, connectors, wire, photo-control sensor, relays, street light arm (elliptical, overbrace), timers, breakaways, plug fuses, pigtail sockets.

Tools and Equipment: Hand tools, PPE, safety equipment, voltmeter, power tools, aerial work platforms, boom truck, radial boom derrick (RBD).

Sub-task

9.01 Installs street lights. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

9.01.01 knowledge of installation procedures such as those for wood pole mounted and light standard mounted

9.01.02 knowledge of manufacturers' specifications for voltage and wattage

9.01.03 knowledge of types of street lights

9.01.04 knowledge of related equipment such as relays, photo-cells, timers and lamps

9.01.05 knowledge of related components such as starters, ballasts and capacitors

9.01.06 ability to select standard fixtures and related hardware and bases

9.01.07 ability to place bases

9.01.08 ability to mount light standard and luminaries

9.01.09 ability to test fixtures

Sub-task

9.02 Maintains street lights. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

9.02.01 knowledge of trouble-shooting components such as lamps and photo-cells

9.02.02 knowledge of maintenance procedures

9.02.03 ability to replace defective components

9.02.04 ability to test and repair or replace fixture

Task 10 Installs voltage control equipment.

Related Components: Transformers, lightning arrestors, fuses (current limiting, non-expulsion, link fuse), disconnects (load break, cut-out), crossarms, ground connections (ground wire, ground rods, moulding), stirrups, hotline clamps, connectors (ampact, squeeze on, crimped), pad mount transformer base (fibreglass, concrete), poles (wood, steel, aluminium, concrete, etc.), capacitors, oil circuit breakers, supervisory control and data acquisition systems (SCADA), regulators, by-pass switch, platforms, switches (air break, oil, vacuum, gas, sulphur hexafluoride [SF6]), reactors.

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, live-line tools, electrical testing equipment, power tools, aerial work platforms, rigging, hoisting and lifting equipment.

Sub-task

10.01 Installs transformers. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

10.01.01 knowledge of types, sizes and purposes of transformers such as pole mount, pad mount, single phase and vaulted

10.01.02 knowledge of transformer operation principles

10.01.03 knowledge of transformer installation/replacement procedures

Supporting Knowledge & Abilities

10.01.04 knowledge of manufacturers' specifications such as polarity and impedance

10.01.05 ability to identify and select transformer

10.01.06 ability to mount or set transformer

10.01.07 ability to connect transformer

10.01.08 ability to test transformer voltage and rotation

10.01.09 ability to fuse transformer

10.01.10 ability to install related equipment such as lightning arrestors and current-limiting fuses

Sub-task

10.02 Installs capacitors.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	no	yes	ND

10.02.01 knowledge of types, sizes and purposes of capacitors

10.02.02 knowledge of capacitor operation principles

10.02.03 knowledge of capacitor installation/replacement procedures

10.02.04 knowledge of charge-holding capability

10.02.05 ability to identify and select capacitors

10.02.06 ability to mount and connect capacitors

10.02.07 ability to field test capacitors

Sub-task

10.03 Installs voltage regulators. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

10.03.01 knowledge of types and sizes of regulators such as electronic or manual

10.03.02 knowledge of voltage regulator operation principles

10.03.03 knowledge of related equipment such as by-pass switch and lightning arrestors

10.03.04 ability to identify and select regulators

10.03.05 ability to place regulators

10.03.06 ability to connect regulators

10.03.07 ability to field test regulators

10.03.08 ability to put in, and take regulators out of service such as zero regulator and operate by-pass switches

Sub-task

10.04 Installs switches. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

10.04.01 knowledge of types and sizes of switches such as air break, oil switches and gas switches

10.04.02 knowledge of switch operation principles

10.04.03 knowledge of switch installation/replacement procedures

10.04.04 knowledge of manufacturers' instructions

10.04.05 knowledge of live-line techniques

10.04.06 knowledge of switch operational procedures

10.04.07 ability to identify and select switches

Supporting Knowledge & Abilities

10.04.08 ability to assem[illegible] switches

10.04.09 ability to mount and connect switches

Sub-task

10.05 Installs reactors.

Supporting Knowledge & Abilities

(NOT COMMON CORE)

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
no	no	yes	no	ND	no	no	yes	no	yes	no	yes	ND

10.05.01 knowledge of types sizes and purposes reactors

10.05.02 knowledge of reactor operation principles

10.05.03 knowledge of reactor installation/replacement procedures

10.05.04 ability to identify and select reactors

10.05.05 ability to install and connect reactors

10.05.06 ability to field test reactors

Task 11 Installs protection equipment.

Related Components: Reclosers, poles, by-pass switches, cross arms, lightning arrestors, ground wire, ground rods, mouldings, connectors, fuses (current limiting, enclosed cut-out, open cut-out, plug-type, cartridge, non-expulsion, primary link, power, knife-blades, etc.) fuse charts, sectionalizer.

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, live-line tools, electrical testing equipment, power tools, aerial work platforms, rigging, hoisting and lifting equipment.

Sub-task

11.01 Installs reclosers. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

11.01.01 knowledge of types and sizes of reclosers such as electronic or oil circuit and vacuum

11.01.02 knowledge of recloser operation principles

11.01.03 knowledge of recloser installation/replacement procedures

11.01.04 knowledge of related equipment

11.01.05 ability to identify and select reclosers

11.01.06 ability to mount and connect reclosers

11.01.07 ability to place reclosers in service

11.01.08 ability to operate and field test reclosers

Sub-task

11.02 Installs fuses. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

11.02.01 knowledge of types and sizes of fuses such as power fuses and link fuses

11.02.02 knowledge of fuse operation principles

11.02.03 knowledge of fuse installation/replacement procedures

11.02.04 knowledge of fuse charts

11.02.05 ability to select fuse type and size

11.02.06 ability to test fuses

11.02.07 ability to mount and connect fuses

11.02.08 ability to interpret standards and policies for re-fusing

Sub-task

11.03 Installs sectionalizers. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	no	ND	yes	yes	yes	yes	yes	yes	yes	ND

11.03.01 knowledge of types and sizes of sectionalizers such as voltage and amperage

11.03.02 knowledge of sectionalizer operation principles

11.03.03 knowledge of sectionalizer installation/replacement procedures

11.03.04 ability to mount and connect sectionalizers

11.03.05 ability to place sectionalizers in service

Task 12 Installs metering equipment.

Related Components: Potential transformers, current transformers, meters, primary metering tanks, meter seals, disconnect sleeves, meter socket covers, test switches.

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, live-line tools, electrical testing equipment, power tools, aerial work platforms, rigging, hoisting and lifting equipment.

Sub-task

12.01 Installs primary metering. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	no	yes	ND

12.01.01 knowledge of types and sizes of primary metering

12.01.02 knowledge of meter operating principles

12.01.03 knowledge of installation procedures

12.01.04 ability to mount and connect primary metering equipment

Sub-task

12.02 Installs secondary metering. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

12.02.01 knowledge of types of secondary meters such as single-phase or three-phase

12.02.02 knowledge of meter operating principles

12.02.03 knowledge of installation procedures

12.02.04 knowledge of types of meter transformers

12.02.05 ability to inspect meter base for proper connection

12.02.06 ability to install meters

12.02.07 ability to select proper meter such as single-phase and three-phase

12.02.08 ability to differentiate between types of meters such as self contained and instrument meters

12.02.09 ability to install instrument transformers

12.02.10 ability to install test switches

12.02.11 ability to recognize industry seal

12.02.12 ability to identify energy diversion

BLOCK E

MAINTENANCE AND REPAIR

Trends: *The occupation is experiencing a move toward a greater emphasis on live-line maintenance to eliminate outages. In order to facilitate greater quality customer service, the occupation is experiencing the increased use of protective cover-ups and a greater use of inter-jurisdictional assistance to other utilities in emergencies.*

Task 13 Maintains transmission and distribution systems.

Related Components: Company policy and procedures manual.

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, live-line tools, electrical testing equipment, power tools, aerial work platforms, rigging, hoisting and lifting equipment, off-road equipment.

Sub-task

13.01 Inspects distribution and transmission systems.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

13.01.01 knowledge of company transmission and distribution standards

13.01.02 knowledge of operation and function of transmission and distribution systems such as conductor, sag, pole condition and hardware condition

13.01.03 ability to patrol line

13.01.04 ability to recognize damaged hardware, structures and conductors such as broken insulators and guy wires

13.01.05 ability to report abnormal conditions

Sub-task

13.02 Maintains poles. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

13.02.01 knowledge of pole maintenance procedures

13.02.02 knowledge of types of pole defects such as rot, broken insulators, out of plumb, and loose nuts and bolts

13.02.03 ability to test poles for defects such as wood rot

13.02.04 ability to straighten poles

13.02.05 ability to stub/splice poles

13.02.06 ability to remove and replace poles

13.02.07 ability to re-treat poles

Sub-task

13.03 Maintains towers. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

13.03.01 knowledge of tower maintenance procedures

13.03.02 knowledge of types of tower defects such as broken insulators, damaged steel, and loose nuts and bolts

13.03.03 ability to conduct visual inspection

13.03.04 ability to replace tower components and damaged insulators

13.03.05 ability to inspect structure bonding and grounding

13.03.06 ability to repair bonding and grounding

13.03.07 ability to straighten structures

13.03.08 ability to remove and replace towers

13.03.09 ability to report abnormal conditions

Sub-task

13.04 Maintains system components.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

13.04.01 knowledge of system components such as transformers, sectionalizers, switches and fuses

13.04.02 knowledge of company standards and procedures

13.04.03 ability to recognize damaged components

13.04.04 ability to remove and replace system components

13.04.05 ability to report damaged or abnormal system components

Sub-task

13.05 Trims trees.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	no	yes	yes	yes	yes	yes	yes	ND

13.05.01 knowledge of company's right of way line clearances and easements

13.05.02 knowledge of company's safety techniques and procedures to remove trees interfering with live-lines

13.05.03 ability to use tree trimming tools such as chain saws, trim saws and hydraulic stick saws

13.05.04 ability to patrol and identify potentially hazardous trees

13.05.05 ability to determine methods to remove hazard

13.05.06 ability to document findings of line patrol

Task 14 Repairs transmission and distribution systems.

Related Components: Fuses, poles, towers, connectors, conductors, cable, ancillary equipment, splicers, sleeves.

Tools and Equipment: Hand tools, personal protection equipment, safety equipment, live-line tools, electrical measuring equipment, power tools and equipment, powder actuated tools, aerial work platforms, rigging and hoisting equipment, off-road equipment.

Sub-task

14.01 Troubleshoots overhead lines. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

14.01.01 knowledge of trouble shooting procedures such as sectionalizing lines

14.01.02 knowledge of line diagrams and maps

14.01.03 knowledge of types of power system failures

14.01.04 knowledge of safe working methods

14.01.05 ability to determine the nature of malfunction or failure such as broken conductor, bad connections, or high/low voltage complaint

14.01.06 ability to isolate the fault

14.01.07 ability to communicate the nature of failure and estimate repair time to system control

14.01.08 ability to document and report findings

Sub-task

14.02 Troubleshoots underground lines. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

14.02.01 knowledge of troubleshooting procedures for underground lines

Supporting Knowledge & Abilities

14.02.02 knowledge of line diagram and maps

14.02.03 knowledge of types of underground faults in system

14.02.04 knowledge of safe work methods

14.02.05 knowledge of co-existing underground utilities

14.02.06 knowledge of cable locating equipment

14.02.07 ability to determine the nature of the malfunction or failure such as broken conductor, burn-offs and dig-ins

14.02.08 ability to communicate the nature of the failure and estimated time to repair to system control

14.02.09 ability to isolate the fault

14.02.10 ability to locate damaged cable

14.02.11 ability to document and report findings

Sub-task

14.03 Repairs overhead lines.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

14.03.01 knowledge of repair policies and procedures

14.03.02 knowledge of safe work methods

14.03.03 knowledge of types and sizes of overhead conductors

14.03.04 knowledge of repair techniques and material

14.03.05 knowledge of live-line techniques

14.03.06 knowledge of equipment required for repair

14.03.07 ability to isolate and replace defective equipment

14.03.08 ability to repair damaged equipment

Supporting Knowledge & Abilities

14.03.09 ability to remove obstructions and foreign objects such as trees and animals

14.03.10 ability to restore service

14.03.11 ability to document and report repairs

Sub-task

14.04 Repairs underground lines. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	no	yes	yes	yes	yes	yes	ND

14.04.01 knowledge of repair and procedures for underground cable

14.04.02 knowledge of safe work methods

14.04.03 knowledge of types and sizes of underground cable

14.04.04 knowledge of repair techniques and materials

14.04.05 knowledge of equipment required for job

14.04.06 ability to isolate and replace defective equipment

14.04.07 ability to operate locating and diagnostic equipment such as meggers, locators and time domain reflectometers (TDR's)

14.04.08 ability to repair damaged cable or equipment

14.04.09 ability to restore service after repair

14.04.10 ability to document and report repairs

Task 15 Applies live-line methods.

Related Components: Company policy and procedures manual.

Tools and Equipment: Personal protective equipment, safety equipment, electrical metering equipment, live-line tools, hand tools, specialty tools, aerial work platforms, powder actuated tools, power tools, rigging, hoisting and lifting equipment, off-road equipment.

Sub-task

15.01 Assesses live-line status.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

15.01.01 knowledge of utility regulations and procedures for working live-lines

15.01.02 knowledge of circuit designation, voltages and static charges

15.01.03 ability to determine line status

15.01.04 ability to determine work methods

Sub-task

15.02 Uses rubber protective equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

15.02.01 knowledge of types, classes and uses of rubber protective equipment (RPE)

15.02.02 knowledge of manufacturers' specifications for care and use of RPE

15.02.03 knowledge of inspection practices and testing requirements for RPE

15.02.04 knowledge of safe limits of approach

15.02.05 ability to determine size and type RPE

15.02.06 ability to detect damaged, worn, or otherwise unsafe RPE

15.02.07 ability to store and maintain RPE

Sub-task

15.03 Uses bare-hand techniques. **Supporting Knowledge & Abilities**

(NOT COMMON CORE)

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
no	no	no	yes	ND	no	no	yes	yes	no	no	no	ND

15.03.01 knowledge of circuit designations, voltages, amperage and static charges

15.03.02 knowledge of company and provincial regulations

15.03.03 knowledge of tools and equipment used for bare-hand work

15.03.04 knowledge of inspection and field testing of insulated aerial devices

15.03.05 knowledge of bonding procedures

15.03.06 knowledge of the reasons for and use of bucket liners

15.03.07 knowledge of types of jumpers and their capacities

15.03.08 knowledge of methods, principles, and uses of thermo detector and leakage meters

15.03.09 knowledge of procedures for contacting controlling authority for switching orders, work permits and hold offs

15.03.10 knowledge of hoists, tensioners and grips applicable to bare hand work

15.03.11 ability to follow all work operations involving installation of protective covers and handling of live conductors using bare hand techniques

15.03.12 ability to set up and use rigging and hoisting equipment specific to bare hand and live-line high voltage conductors

15.03.13 ability to follow safety procedures to protect personnel and public in work area using signs, flags and barricades

Sub-task

15.04 Uses rubber glove techniques. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

15.04.01 knowledge of circuit designations, voltages, amperage and static charges

15.04.02 knowledge of company and provincial regulations

15.04.03 knowledge of tools and equipment used for rubber glove work

15.04.04 knowledge of inspection and field testing of insulated aerial devices

15.04.05 knowledge of the reasons for and use of bucket liners

15.04.06 knowledge of types of jumpers and their capacities

15.04.07 knowledge of methods, principles and uses of thermo detector and leakage meters

15.04.08 knowledge of procedures for contacting controlling authority for switching orders, work permits and hold offs

15.04.09 ability to follow all work operations involving installation of protective covers and handling of live conductors using rubber glove techniques

15.04.10 ability to set up and use rigging and hoisting equipment specific to rubber gloves and live-line high voltage conductors

15.04.11 ability to follow safety procedures to protect personnel and public in work area using signs, flags and barricades

Sub-task

15.05 Uses stick techniques.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	ND	yes	yes	yes	yes	yes	yes	yes	ND

15.05.01 knowledge of circuit designations, voltages, amperage and static charges

15.05.02 knowledge of company and provincial regulations

15.05.03 knowledge of tools and equipment used for stick work

15.05.04 knowledge of types of jumpers and their capacities

15.05.05 knowledge of methods, principles and uses of thermo detector and leakage meters

15.05.06 knowledge of procedures for contacting controlling authority for switching orders, work permits and hold offs

15.05.07 ability to follow all work operations involving installation of protective covers and handling of live conductors using stick techniques

15.05.08 ability to set up and use rigging and hoisting equipment specific to stick and live-line high voltage conductors

15.05.09 ability to follow safety procedures to protect personnel and public in work area using signs, flags and barricades

APPENDICES

TOOLS AND EQUIPMENT

While ever attempt has been made to provide a complete list of tools and equipment used by powerline technicians the following may not be an all-inclusive list of tools and equipment used in this diverse occupation.

Hand Tools

9" pliers
Allen keys
binoculars
bolt cutters
brace and bits
broom
brushing rakes
buck saw
cable cutters
cable jacks
cant hook
chain jacks
chisel
compression tools (M-D6, Y-35, Y-45, etc.)
crow bar
digging bar
digging spade
drill bits
files
flashlight
funnel
hack saw
hammers
hand saw
knives
levels
needle-nose pliers
nut drivers
nylon straps
peavey
pick
plumb bob
screwdrivers
shovel
sledge hammer
spot light
vice
wire cutters
wrenches

Personal Protective Equipment (PPE)

climbing gear
face shield
fire retardant clothing
flash glasses
goggles
hard hat and 4 point chin straps
harness: "fall arrest"
hearing protection
insulated gloves
leather gloves
rubber gloves
safety glasses
safety-toe footwear
safety vest

Safety Equipment

arrow boards
asbestos gloves
barricades
breathing protection
bucket and tower rescue and descent equipment
caution tape
cones
conductive clothing
confined space evacuation equipment
fire blankets
fire extinguisher
first-aid equipment
flares
fume and toxic gas detector
grounding devices
insulated gloves
life lines
plastic line guards
plastic pole guards
pole top rescue equipment
rubber protective cover-up
traffic caution signage
wheel chocks

Live-line Tools

auxiliary arm and insulators
by-pass jumper
cut-out covers
elbow puller
hot sticks-clamp, grip all, P-2
insulated web hoist
insulator support
live-line cutters
load break tool
spiral link sticks
sticks

Electrical Measuring Equipment

continuity tester
current leakage meter
digital recording amp meter
digital recording volt meter
energized insulator tester
high-voltage phasing sticks
ohm meter
potential testing meter
rotation meter
time domain reflectometer
voltage/amp meters

Power Tools

chain saw
electric drill
gas drill
hammer drill
hydraulic cutters
hydraulic drill
hydraulic/electric press (Y-35, Y-45)
jack hammer
pneumatic drill
portable generator

Specialty Tools and Equipment

air compressor
cable locator
cable stripper
core sampling tool
feed through device
field lashing tool
gaff gauge
ground rod driver
infrared gun
oil sample test kit
reel jacks
running grounds
sag board
silicon cloth
tool bucket

Powder Actuated Tools

CAD welding tool
explosive-actuated spiking tool
explosive-actuated splicing tool
powder actuated Ramset

Aerial Work Platforms

bucket truck
fibreglass ladders
insulated pole platform (diving board)
Material Handling Aerial Device (MHAD)

Rigging, Hoisting and lifting Equipment

block and tackle
boom truck (RBD)
capstan hoist
crane
dynamometer
hand line
hoists
pike pole
pole jack
power reel trailer
rail tower truck
slings/grips
tension machine
wire mesh cable grip

Off-Road Equipment

all terrain vehicle
back hoe
boat
bulldozer
hydro vacuum excavator
nodwell
skidder
snowmobile
trencher

Communications Equipment

cellular phone
computer
fax machine
pager
printer
telephone
two-way radio

ACRONYMS

CAD	Computer-Assisted Design, Computer-Assisted Drafting
CATV	Community Antenna Television
CSA	Canadian Standard Association
ECUC	Electrical and Communication Utility Code (high voltage)
IEEE	Institute of Electrical and Electronics Engineers
ISA	Instrumentation Society of America
LAN	Local Area Network
MSDS	Material Safety Data Sheets
OHSA	Occupational Health and Safety Act
PLC	Programmable Logic Control Systems
PPE	Personal Protective Equipment
RPE	Rubber Protection Equipment
SCADA	Supervisory Control and Data Acquisition
TTR	Transformer Turn Ratiometer
ULC	Underwriters Laboratory Canada
UPS	Uninterruptible Power Supply Systems
WHMIS	Workplace Hazardous Material Information System

BLOCKS AND TASKS WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	21	10	10	20	ND	20	40	20	15	10	15	10	ND	18%

Task 1 Interprets occupational documentation.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	10	20	20	24	ND	10	5	10	10	10	10	10	ND	13%

Task 2 Organizes work.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	19	40	20	23	ND	25	10	10	25	10	25	10	ND	20%

Task 3 Communicates in the workplace.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	21	20	30	22	ND	25	5	10	15	30	15	30	ND	20%

Task 4 Uses and maintains tools and equipment.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	50	20	30	31	ND	40	80	70	50	50	50	50	ND	47%

BLOCK B STRUCTURES

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	10	10	25	15	ND	10	5	15	15	15	20	15	ND	14%

Task 5 Installs poles.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	77	90	100	100	ND	80	90	75	75	65	90	65	ND	82%

Task 6 Installs transmission towers.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	23	10	0	0	ND	20	10	25	25	35	10	35	ND	18%

BLOCK C CONDUCTOR SYSTEMS

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	24	30	25	20	ND	20	15	15	30	15	20	15	ND	21%

Task 7 Installs overhead conductors.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	74	75	80	68	ND	50	80	60	50	70	80	70	ND	69%

Task 8 Installs underground cable.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	26	25	20	32	ND	50	20	40	50	30	10	30	ND	31%

BLOCK D AUXILIARY EQUIPMENT

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	16	20	15	15	ND	25	30	5	10	35	20	35	ND	22%

Task 9 Installs lighting systems.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	29	10	33	16	ND	10	10	20	15	5	35	5	ND	17%

Task 10 Installs voltage control equipment.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	32	40	34	24	ND	40	65	50	45	65	20	65	ND	44%

Task 11 Installs protection equipment.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	23	40	26	35	ND	40	20	20	30	25	35	25	ND	29%

Task 12 Installs metering equipment.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	16	10	7	25	ND	10	5	10	10	5	10	5	ND	10%

BLOCK E MAINTENANCE AND REPAIR

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	29	30	25	30	ND	25	10	25	30	25	25	25	ND	25%

Task 13 Maintains transmission and distribution systems.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	33	20	40	36	ND	20	40	30	33	30	40	30	ND	32%

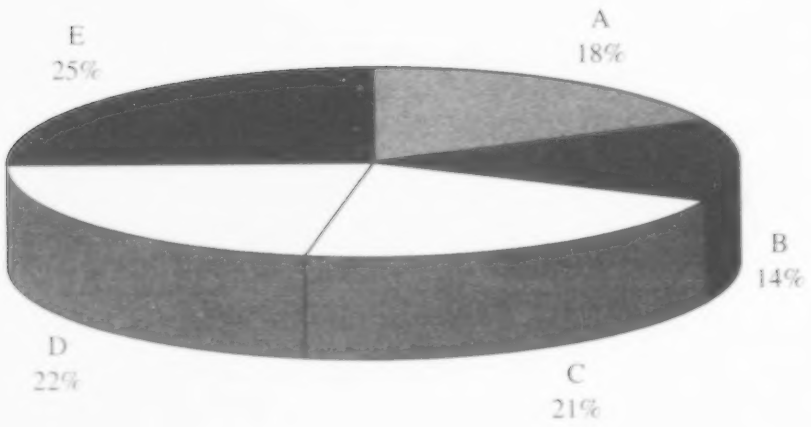
Task 14 Repairs transmission and distribution systems.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	28	40	40	31	ND	20	40	30	33	40	60	40	ND	37%

Task 15 Applies live-line methods.

	NF	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	39	40	20	33	ND	60	20	40	34	30	0	30	ND	31%

PIE CHART*
Powerline Technician



TITLES OF BLOCKS

Block A	Occupational Skills	Block D	Auxiliary Equipment
Block B	Structures	Block E	Maintenance and Repair
Block C	Conductor Systems		

* Average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from 100 up to 150 multiple-choice questions on each examination.

POWERLINE TECHNICIAN (2004)

BLOCKS	TASKS	SUB-TASKS									
A Occupational Skills	1. Interprets occupational documentation.	1.01 Interprets drawings, specifications and standards.	1.02 Interprets policies, regulations and procedures.	1.03 Interprets material and equipment documentation.	1.04 Maintains work-related records.						
	2. Organizes work.	2.01 Assesses and prepares work site.	2.02 Controls vehicle and pedestrian traffic.	2.03 Identifies powerline hazards.	2.04 Controls powerline hazards.	2.05 Controls environmental hazards.	2.06 Organizes equipment, tools and personnel.	2.07 Organizes materials and supplies.	2.08 Develops and maintains schedule.		
	3. Communicates in the workplace.	3.01 Communicates with other disciplines and co-workers.	3.02 Communicates with customers.	3.03 Communicates with apprentices.	3.04 Participates in tailboard meetings.	3.05 Communicates using hand signals.	3.06 Communicates electronically.				
	4. Uses and maintains tools and equipment.	4.01 Uses personal protective equipment (PPE).	4.02 Uses hand tools.	4.03 Uses power tools.	4.04 Uses powder-actuated tools.	4.05 Uses electrical measuring and testing equipment.	4.06 Uses ladders.	4.07 Uses climbing gear.	4.08 Uses aerial work platforms.	4.09 Uses rigging, hoisting and lifting equipment.	4.10 Uses live-line tools.	4.11 Maintains tools and equipment.
B Structures	5. Installs poles.	5.01 Selects poles.	5.02 Frames poles.	5.03 Sets poles.	5.04 Installs pole guys and anchors.						
	6. Installs transmission towers.	6.01 Installs footings.*	6.02 Assembles transmission towers.	6.03 Erects transmission towers.	6.04 Installs transmission tower guy wires and anchors. *						
C Conductor Systems	7. Installs overhead conductors.	7.01 Strings overhead conductors.	7.02 Sags overhead conductors.	7.03 Ties-in overhead conductors.	7.04 Splices overhead conductors.						
	8. Installs underground cable.	8.01 Places underground cable.	8.02 Splices underground cable.	8.03 Terminates underground cable.							

* = (NOT COMMON CORE)

POWERLINE TECHNICIAN (2004)

BLOCKS	TASKS	SUB-TASKS				
D Auxiliary Equipment	9. Installs lighting systems.	9.01 Installs street lights.	9.02 Maintains street lights.			
	10. Installs voltage control equipment.	10.01 Installs transformers.	10.02 Installs capacitors.	10.03 Installs voltage regulators.	10.04 Installs switches.	10.05 Installs reactors. *
	11. Installs protection equipment.	11.01 Installs reclosers.	11.02 Installs fuses.	11.03 Installs sectionalizers.		
	12. Installs metering equipment.	12.01 Installs primary metering.	12.02 Installs secondary metering.			
E Maintenance and Repair	13. Maintains transmission and distribution systems.	13.01 Inspects distribution and transmission systems.	13.02 Maintains poles.	13.03 Maintains towers.	13.04 Maintains system components.	13.05 Trims trees.
	14. Repairs transmission and distribution systems.	14.01 Troubleshoots overhead lines.	14.02 Troubleshoots underground lines.	14.03 Repairs overhead lines.	14.04 Repairs underground lines.	
	15. Applies live-line methods.	15.01 Assesses live-line status.	15.02 Uses rubber protective equipment.	15.03 Uses bare-hand techniques. *	15.04 Uses rubber glove techniques.	15.05 Uses stick techniques.

* = (NOT COMMON CORE)